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| 10/749,672 | 12/31/2003 | Amir Khan | 17316 (DN2799) | 9728 |

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| EXAMINER |
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CHEVALIER, ALICIA ANN

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1794

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|------------------------------------|--|
| Office Action Summary | Application No. 10/749,672 | Applicant(s) KHAN ET AL. | |
| | Examiner ALICIA CHEVALIER | Art Unit 1794 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16, 18, 20 and 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16, 18, 20 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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RESPONSE TO AMENDMENT

1. Claims 1-16, 18, 20 and 21 are pending in the application, claims 17 and 19 have been cancelled.
2. Amendments to the claims, filed on September 25, 2009, have been entered in the above-identified application.

REJECTIONS

3. **The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.**

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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5. Claims 1-21 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-21 of copending Application No. 10/918268 in view of Liu et al. (U.S. Patent No. 5,68,669).

Regarding Applicant's claims 1, 7, 15 and 21, Application No. 10/918268 claims a top coating composition comprising: a cured reaction product/mixture of a polymeric binder, at least one intumescent agent comprising graphite and at least one intercalant, a polymeric carrier and an effective amount of a pigments, wherein said mixture has a solids content from about 50 75 wt. % with 1-10 total wt. % of the expandable graphite particles. The cured reaction product/mixture is to provide a coating that has the ability to char and expand when introduced to flame and has an initial energy efficiency rating greater than or equal to 0.65 for a low-sloped roof or greater than or equal to 0.25 for a steep-sloped roof (*claims 1 and 16*).

Application No. 10/918268 fails to claim that the at least one intumescent agent comprises heat expandable graphite particles which decompose and release gases when exposed to fire.

Liu teaches that heat expandable graphite particles (*abstract*) and its use for providing flame resistance is well known in the art. Heat expandable graphite is formed by treating crystalline graphite, which is composed of stacks of parallel plans of carbon atoms, with intercalants such as sulfuric acid and/or nitric acid. Since no covalent bonding exists between the planes of the carbon atoms, the intercalant can be inserted there between. This allows the intercalant to be positioned within the graphite lattice. When the intercalated graphite is exposed to heat or flame, the inserted molecules decompose and release gases. The graphite layer planes

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are forced apart by the gas and the graphite expands, thereby creating a low-density, non-burnable, thermal insulation that can reflect a high percentage of heat (*col. 1, lines 32-47*).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use heat expandable graphite particles as the intumescent agent comprising graphite and at least one intercalant as taught by Liu in Application No. 10/918268 in order to create a low-density, non-burnable, thermal insulation that can reflect a high percentage of heat.

Regarding Applicant's claims 2-4, 10 and 12, Application No. 10/918268 claims that the polymeric binder is a thermoplastic polymer or a thermoplastic rubber. The polymeric binder is a thermoplastic polymer selected from the group consisting of acrylic or methacrylic polymers or copolymers, epoxy resins, and polyvinyl acetate. The polymeric binder is a thermoplastic rubber selected from the group consisting of styrene-butadiene rubbers, styrene-butadiene-styrene rubbers, styrene-ethylene-butadiene-styrene (SEBS) rubbers, styrene isoprene styrene (SIS) rubbers, and styrene butadiene rubbers. The polymeric binder is present in said mixture in an amount from about 5 to about 60 wt. % or a thermoplastic rubber that is present in said mixture in an amount from about 8 to about 18 wt. %. (*Claims 2-4, 10 and 12*).

Regarding Applicant's claims 5 and 8, Application No. 10/918268 claims that the polymeric carrier is water that forms an aqueous polymeric-based emulsion with the polymeric binder and the polymeric carrier (*claims 5 and 8*). The pigment is present in said mixture in an amount from about 2 to about 20 wt. % (*claim 13*).

Regarding Applicant's claims 6 and 13, Application No. 10/918268 claims that the pigment is titanium dioxide, calcium carbonate, colemanite, aluminum trihydrate (ATH), borate compounds or mixtures thereof (*claims 6 and 7*).

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Regarding Applicant's claims 9 and 11, Application No. 10/918268 claims that the polymer carrier is a hydrocarbon solvent that forms a solvent polymeric-based emulsion with the binder and carrier. The polymer carrier is an acrylic polymer that present in the mixture in the amount of 30 to about 50 wt% (*claims 9 and 11*).

Regarding Applicant's claim 14, Application No. 10/918268 claims that the composition further comprising one or more optional components selected from the group consisting of dispersants, defoamers, fillers, solvents, microbiocides, thickening agents, additional fire retardants, pH modifiers, wetting agents, light stabilizers, and adhesion promoters (*claim 15*).

Regarding Applicant's claims 16, 18 and 20, Application No. 10/918268 claims that the top coating is applied to a substrate to produce a roofing product. The substrate comprises single ply membranes, built-up roofing (BUR), modified bitumen, ethylene propylene diene monomer rubber (EPDM) or standing-seam profile, composite shingles, clay, concentrate, fiber cement tile, slate, shakes, architectural profiled metal or individual roofing components (*claim 18 and 21*).

Regarding Applicant's claims 17 and 19, Application No. 10/918268 claims the substrate has surfaces with a slope of 2:12 inches or less or greater (*claims 19 and 20*).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

6. Claims 1-5, 8, 10, 12-16, 18 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Clemens et al. (U.S. Patent Application Publication No. 2002/0114940).

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Regarding Applicant's claims 1 and 15, Clemens discloses a top coating (*top coat*, *page 1, paragraph [0020]*) composition comprising: a cured (*page 8, paragraph [0169]*) reaction product/mixture of a polymeric binder (*page 2, paragraph [0022]*), heat expandable graphite particles (*page 2, paragraph [0029]* and *page 8, paragraph [0187]*), a polymeric carrier (*page 2, paragraph [0029]*) and an effective amount of a pigments (*page 2, paragraph [0024]*), wherein said mixture has a solids content from about 50 to 75 wt. % with 1-10 total wt. % of the expandable graphite particles (*page 2, paragraphs [0022]-[0029]*). The cured reaction product/mixture is deemed to provide a coating that has the ability to char and expand when introduced to flame and has an initial energy efficiency rating greater than or equal to 0.65 for a low-sloped roof or greater than or equal to 0.25 for a steep-sloped roof, since Clemens discloses the same claimed top coating composition.

Regarding Applicant's claims 2-4, 10 and 12, Clemens discloses that the polymeric binder is a thermoplastic polymer or a thermoplastic rubber. The polymeric binder is a thermoplastic polymer selected from the group consisting of acrylic or methacrylic polymers or copolymers, epoxy resins, and polyvinyl acetate (*page 2, paragraph [0022]*). The polymeric binder is a thermoplastic rubber selected from the group consisting of styrene-butadiene rubbers, styrene-butadiene-styrene rubbers, styrene-ethylene-butadiene-styrene (SEBS) rubbers, styrene isoprene styrene (SIS) rubbers, and styrene butadiene rubbers (*page 5, paragraph [0116]*). The polymeric binder is present in said mixture in an amount from about 5 to about 60 wt. % or a thermoplastic rubber that is present in said mixture in an amount from about 8 to about 18 wt. % (*page 1, paragraph [0021]* through *page 2, paragraph [0029]*).

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Regarding Applicant's claims 5 and 8, Clemens discloses that the polymeric carrier is water that forms an aqueous polymeric-based emulsion with the polymeric binder and the polymeric carrier (*page 2, paragraph [0029]*).

Regarding Applicant's claim 13, Clemens discloses the pigment is present in said mixture in an amount from about 2 to about 20 wt. % (*page 2, paragraph [0024]*).

Regarding Applicant's claim 14, Clemens discloses that the composition further comprising one or more optional components selected from the group consisting of dispersants, defoamers, fillers, solvents, microbiocides, thickening agents, additional fire retardants, pH modifiers, wetting agents, light stabilizers, and adhesion promoters (*page 2, paragraph [0029]*).

Regarding Applicant's claims 16, 18 and 20, Clemens discloses that the top coating is applied to a substrate to produce a roofing product. The substrate comprises single ply membranes, built-up roofing (BUR), modified bitumen, ethylene propylene diene monomer rubber (EPDM) or standing-seam profile, composite shingles, clay, concrete, fiber cement tile, slate, shakes, architectural profiled metal or individual roofing components (*page 3, paragraph [0060] through page 4, paragraph [0094]*).

Claim Rejections - 35 USC § 103

7. Claims 6, 7, 9, 11 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clemens et al. in view of Liu et al. (U.S. Patent No. 5,968,669).

Clemens is relied upon as described above.

Regarding Applicant's claims 7 and 21, Clemens fails to disclose an intercalant positioned within the graphite lattice.

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Liu teaches that heat expandable graphite and its use for providing flame resistance is well known in the art. Heat expandable graphite is formed by treating crystalline graphite, which is composed of stacks of parallel plans of carbon atoms, with intercalants such as sulfuric acid and/or nitric acid. Since no covalent bonding exists between the planes of the carbon atoms, the intercalant can be inserted there between. This allows the intercalant to be positioned within the graphite lattice. When the intercalated graphite is exposed to heat or flame, the inserted molecules decompose and release gases. The graphite layer planes are forced apart by the gas and the graphite expands, thereby creating a low-density, non-burnable, thermal insulation that can reflect a high percentage of heat (*col. 1, lines 32-47*).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use an intercalant positioned within the graphite lattice as taught by Liu in Clemens in order to create a low-density, non-burnable, thermal insulation that can reflect a high percentage of heat.

Regarding Applicant's claims 6, Clemens fails discloses that the pigment is titanium dioxide, calcium carbonate, colemanite, aluminum trihydrate (ATH), borate compounds or mixtures thereof. However, Lui discloses that pigments such as titanium dioxide improves the appearance of the roofing material (*col. 10, lines 43-46*). It would have been obvious to one of ordinary skill in the art at the time of the invention to use pigments such as titanium dioxide in Clemens as taught by Lui to improve the appearance of the roofing material.

Regarding Applicant's claims 9 and 11, Clemens fails that the polymer carrier is a hydrocarbon solvent that forms a solvent polymeric-based emulsion with the binder and carrier. However, Liu teaches the polymer carrier is a hydrocarbon solvent, acrylic polymer that forms a solvent polymeric-based emulsion with the binder and carrier in the amount of 30 to about 50

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wt%, which adjusts the viscosity of the composition (*col. 4, lines 30-45*). It would have been obvious to one of ordinary skill in the art to use a solvent polymer carrier as taught by Liu in Clemens to help adjust the viscosity of the coating. It would be desirable to adjust the viscosity of the coating to ensure proper application of the coating.

ANSWERS TO APPLICANT'S ARGUMENTS

8. Applicant's arguments in the response filed May 11, 2009 regarding the double patenting rejection of record have been carefully considered but are deemed unpersuasive.

9. Applicant's arguments in the response filed May 11, 2009 regarding the 35 U.S.C. 102(b) rejection over Clemens of record have been carefully considered but are deemed unpersuasive.

Applicant argues that neither the "topcoat" of Clemens does not teach a cured reaction product/mixture of a polymeric binder.

First it is noted that only claim 15 requires that the top coat is cured, independent claim 1 does not. Second, Clemens discloses that the topcoat, as well as the basecoat comprises a cured resin, see page 8, paragraph [0169].

Applicant argues that the expandable graphite particles are in the basecoat not the top coat.

Clemens discloses in Paragraph [0029] that the topcoat can further comprise a flame retardant. Then paragraph [0187] discloses the examples of usable flame retardants, such as expandable graphite, of the invention of Clemens. Therefore, Clemens discloses that the topcoat comprises expandable graphite.

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10. Applicant's arguments in the response filed May 11, 2009 regarding the 35 U.S.C. 103(a) rejection over Clemens in view of Liu of record have been carefully considered but are deemed unpersuasive.

Applicant argues that Liu does not cure the deficiencies of Clemens. Applicant's arguments regarding the issue between the basecoat and the topcoat of Clemens have already been addressed above.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alicia Chevalier whose telephone number is (571) 272-1490. The examiner can normally be reached on Monday through Friday from 8:00 am to 4:00 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Sample can be reached on (571) 272-1376. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Alicia Chevalier/
Primary Examiner, Art Unit 1794
1/5/2010